

ACQUISITION EXCELLENCE: PROVIDING CRITICAL OPERATIONAL CAPABILITIES TO THE WARFIGHTER

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Introduction

Since Operation Desert Storm, the Army's urgency for a versatile digitized Blue Force Tracking (BFT) system for both ground and aviation platforms has intensified. Since September 11, 2001, Operation Enduring Freedom has been a major influence in shaping requirements for BFT capabilities. The Army's newly developed BFT Aviation (BFT-AVN) System is a system-of-systems approach to satisfy the Army's immediate and urgent requirement for providing the maneuver commander with the near-real-time situational awareness (SA) data that are essential to a streamlined decisionmaking process. The BFT-AVN System is an integration of existing and modified commercial off-the-shelf (COTS) and government off-the-shelf hardware and software used to track both ground and airborne platforms and to provide a

dynamic aggregated SA picture of those platforms. The BFT-AVN System employs the Force XXI Battle Command Brigade and Below (FBCB2) hardware and software as a direct interface into the common operating picture (COP) via the Global Command and Control System-Army (GCCS-A). The system

consists of an A-kit and a B-kit and populates the COP through GCCS-A via satellite links. The A-kit is comprised of aircraft modifications such as wiring, cabling, circuit breakers, electrical power, and mounting hardware required for installation of the B-kit. The B-kit consists of BFT-AVN hardware and integrated software as well as data communications and position/location components. The system integrates the most current version of FBCB2 hosted on a military computer, a COTS L-band transceiver, data communications router, and a standard Precision Lightweight Global Positioning System Receiver, housed within a robust mounting rack.



Photo depicts a Blue Force Tracking Aviation System installed in UH-60L Black Hawk helicopter.

Requirements Generation

Initial requirements for a BFT System stem from the Army Battle Command System

Capstone Requirements Document of Nov. 23, 1998, and the FBCB2 Operational Requirements Document of March 26, 2002. The FBCB2 System is supported by the Joint Requirements Oversight Council-approved Mission Needs Statement for Horizontal Integration of Battle Command dated Jan. 10, 1995. The February 2002 Operational Needs Statement for the BFT of U.S. Army Central Command expanded BFT requirements to include the Balkans Digitization Initiative (BDI) to support Operation Enduring Freedom and other Central Command operation plans. Further Army Requirements Oversight Council decisions led to the Operation Enduring Freedom command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) effort, which the BFT-AVN System supports.

Acquisition Reform

With today's acquisition streamlining initiatives, the "blocked-systems approach" is a practical method used to provide warfighters with critical operational capabilities (i.e., it is critical in providing a 90-percent solution *now* rather than waiting 5 years for the 100-percent solution). The success of the BFT-AVN Program can be measured on the three metrics of cost, schedule, and performance. Despite the critical timeline imposed on the system, the BFT-AVN Product Office was successful in effectively managing personnel and funding resources. The program remarkably continues to stay within budget while maintaining an aggressive schedule; the product office performed approximately 2 years of work in only 6 months; and system performance has met or exceeded user requirements. By performing simultaneous activities throughout the development of the program—aided by the effective teamwork of numerous organizations—the product office was able to break down past acquisition paradigms and

achieve both incremental and overall program successes.

Participating Organizations

Although numerous government agencies and DOD contractors supported the program, the following organizations played a critical role in executing the BFT-AVN Program:

- *U.S. Army Aviation Applied Technology Directorate (AATD)*. Located at Fort Eustis, VA, AATD provided the overall hardware design, configuration control, and appropriate antenna placement. AATD also provided systems testing, manufacturing, and integration oversight.

- *Aviation Engineering Directorate (AED)*. AED is located at Redstone Arsenal, AL, and was responsible for generation of Airworthiness Releases (AWRs) on the four primary aviation platforms on which the BFT-AVN Systems are mounted. The AWRs certify that the BFT-AVN A-kits and B-kits do not adversely affect the flight and missions and, where applicable, identify specific operational limitations of the BFT-AVN System. AED was instrumental in implementing acquisition reform initiatives and transforming development of BFT-AVN AWRs, which can take several months to produce and issue to the field. Because of the program's high visibility, AED's management was able to effectively prioritize the efforts and provide the manpower requirements to support the program's accelerated schedule requirements.

- *BFT-AVN Product Office*. The BFT-AVN Product Office is located near Redstone Arsenal and is collocated with the Tactical Operations Centers/Air and Missile Defense Command and Control Systems (TOCs/AMDCCS) Project Office in Madison, AL. However, the FBCB2 Project Office at Fort Monmouth, NJ, provides oversight to the BFT-AVN Product Office. The project offices of both TOCs/AMDCCS and FBCB2 are

within the organizational structure of the Program Executive Office for Command, Control, and Communications Tactical (PEO, C3T), also headquartered at Fort Monmouth. The BFT-AVN Product Office is responsible for the execution of the acquisition of planning, programming, budgeting, and life-cycle engineering support.

- *Information Assurance Community*. Functional and technical experts from offices such as the Defense Information Systems Agency, National Security Agency, Department of the Army, and PEO, C3T coordinated to resolve major program issues regarding the Defense Information Technology Security and Accreditation Process, the secret and below initiative, an interim authority to connect and operate, and other C4ISR-related issues.

- *Aviation and Missile Command (AMCOM) OLR Project Office*. The AMCOM OLR Project Office has facilities and personnel at various Army installations throughout the United States and overseas. This team installed BFT-AVN A-kits and B-kits on various aviation platforms.

- *PEO, Aviation*. PEO, Aviation is located at Redstone Arsenal and was responsible for total life-cycle planning of the Army's inventory of aviation platforms. PEO, Aviation provided essential platform aviation expertise.

- *Prototype Integration Facility (PIF)*. PIF is located at Redstone Arsenal and is a component of the Engineering Directorate of the Aviation and Missile Research, Development, and Engineering Center (AMRDEC). PIF provides an in-house, rapid-response capability for generating hardware solutions; mechanical fabrication, cable assembly, and integration expertise; and platform integration coordination and test support. This AMRDEC facility was paramount in the rapid manufacturing of prototypes and production of BFT-AVN Systems and spares. Considering

PIF's intrinsic capabilities, its slogan—"Turning Ideas Into Reality"—could be considered an understatement.

- *Redstone Technical Test Center (RTTC)*. RTTC performed the electromagnetic environmental effects (E3) testing required on aviation platforms equipped with BFT and provided support personnel and facilities. The E3 Test Branch successfully conducted the appropriate levels of electromagnetic environmental testing to support AED's development and issuance of AWRs.

- *Aviation Unit Participation*. Aviation units from Fort Campbell, KY, provided aircraft, aircrews, and critical maintenance support—all of which were necessary during the BFT-AVN Proof of Principle Demonstration, integration of the BFT-AVN systems-level mission packages, E3 testing, and first article installations.

- *U.S. Army Aviation Logistics School (USAALS)*. USAALS assisted in the development of training and operating manuals for all four aviation platforms equipped with the BFT-AVN mission packages.

- *U.S. Army Staff*. Primary staff offices included G-3 (Operations and Plans), G-6 (Communications), and G-8 (Programs). In addition, the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology prioritized requirements and provided funding resources and program oversight.

Team Synergism

The Army-led BFT Team effectively used the "flexibilities of acquisition reform" in the near-real-time design, development, and production of BFT Systems. Because of national priority, fielding requirements, and time constraints imposed upon the system, the BFT Product Office assumed many risks—the near-simultaneous design, manufacture, installation, and integration, qualification and flight testing of BFT-AVN Systems contributed to

these risks. Concurrent activities such as ordering long lead-time items and starting production prior to the release of approved engineering drawings, unforeseen changes, and increased testing resulted in additional program risks. Despite these schedule, manufacturing, and integration risks, the product office was effective in managing overall efforts. For example, scheduling of A-kit and B-kit integration was updated on a daily basis so that the integration and subsequent fielding of BFT-AVN hardware was achieved within time constraints. Even during the design, a total life-cycle system and systems engineering approach were established simultaneously as training, logistics supportability, and sustainment plans were being developed. The synergistic effects of the entire team were realized in the fielding of 200 BFT-AVN Systems installed in different Force Mod aviation platforms to include the UH-60A/L Black Hawk, HH-60L MEDEVAC, Army Airborne Command and Control System, AH-64A Apache, AH-64D Apache Longbow, and CH-47D Chinook helicopters.

Conclusion

The BFT-AVN Product Office has been highly successful as a result of the synergism of its talented and proactive team members, astute application of acquisition reform, and the use of bold leadership at all levels of management. The BFT-AVN Product Office has high visibility, national priority, and its successes can be used as a model for future acquisition excellence initiatives and transformation for larger programs throughout the aviation and other DOD communities. By eliminating the few remaining antiquated acquisition paradigms, and by implementing new and more innovative approaches, acquisition excellence and streamlining can be realized and the potential for program success can be maximized regardless of the

program's acquisition category. Nevertheless, the principal element of any successful program is cohesive teamwork across the spectrum of disciplines focused on the program's goals.

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